KIRICHENKO, L.F.; STRAZHESKO, D.N.; TANKOVSKAYA, T.F.

Exchange of cations on silica gel in the presence of alumin... ions. Ukr.khim.zhur. 31 no.2:160-165 '65.

(MIRA 18:4)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR i Kiyevskiy meditsinskiy institut im. A.A.Bogomol'tsa.

BARAN, A.A.; STRAZHESKO, D.N.; GLAZMAN, Yu.M.; YEREMENKO, B.V.

Density of the surface coating of a disperse phase of lyophobic sols by potential-determining ions. Dokl. AN SSSR 163 no.1:125-128 Jl '65. (MIRA 18:7)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR i Kiyevskiy tekhnologicheskiy institut legkoy promyshlennosti. Submitted December 25, 1964.

[illegible]; CHERTOV, V.M.; VYSOTSKIY, Z.Z.; STRAZHESKO, D.N.

Sorption of cations from acid solutions on silica gels obtained by a hydrothermal method. Dokl. AN SSSR 164 no.3:618-621 S '65. (MIRA 18:9)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR. Submitted March 5, 1965.

STRAZHESKO, K.D.

STRAZHESKO, K.D., akademik; BOHOMOLETS', Oleksandr Oleksandrovych.

My recollections of Academician O.O.Bohomolets'. Medych.zhur. 21 no.4:8-9 '51. (MLRA 6:10)
(Bohomolets', Oleksandr Oleksandrovych, 1881-1951)

STRAZHESKO, Nikolay Dmitriyevich[deceased]; YANOVSKIY, David Naumovich; KARPOVA, G.D., red.; GOROVITS, V.A., tekhn. red.

[Atlas of clinical hematology] Atlas klinicheskoi gematologii. Moskva, Medgiz, 1963. 97 p. 40 plates. (MIRA 16:7)
(HEMATOLOGY—ATLASES)

[illegible], I. V.

IHASS X TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 762 - X

BOOK Call No.: AF684.925
Authors: LEBEDEV, A. A., STRAZHEVA, I. V. and SAKHAROV, G. I.
Full Title: Aeromechanics of Aircraft
Transliterated Title: Aeromekhanika samoleta (Aircraft Fluid Mechanics)
PUBLISHING DATA
Originating Agency:
Publishing House: Gosudarstvenove izdatel'stvo oboronnoy promyshlennosti. Moscow.
Date: 1955 No. pp.: 472 No. of copies:
Editorial Staff: None
Others: Gratitude for cooperation is expressed to: Profs. Ostoslavskiy, I. V., Burago, G. F., Martynov, A. K. and Zhuravchenko, A. N.
PURPOSE AND EVALUATION: This is a textbook for courses in aviation institutions of higher learning in which aeromechanics is taught in abbreviated from. The interest of the book consists in the quantity of material it presents in a comparatively small volume. It shows also how aerodynamics and aircraft mechanics is taught in the USSR and what is the general approach to problems of the design and calculation of aircraft. The works of Zhukovskiy and other Russian Scientists are often mentioned as a basis for future developments. However, the basic approach to theoretical-----

Note: See Report for LEBEDEV, A. A. for pages 2-7 of the report.

1/7

STRAZHEVA I V

SOV/5130

PHASE I BOOK EXPLOITATION

Ostoslavskiy, Ivan Vasil'yevich, and Irina Viktorovna Strazheva

O formirovanii kontura upravleniya samoletom (Forming Aircraft Control Outline) Moscow, Oborongiz, 1960. 97 p. Errata slip inserted. 3,150 copies printed. (Series: Moscow. Aviatsionnyy institut imeni Sergo Ordzhonikidze. Trudy, vyp. 124)

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR and Moskovskiy ordena Lenina Aviatsionnyy institut imeni Sergo Ordzhonikidze.

Ed.: I. L. Yanovskiy, Engineer; Ed. of Publishing House: M. S. Anikina; Tech. Ed.: V. P. Rozhin; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: The book is intended for aircraft industry personnel. It may also be used by instructors and students in technical schools of higher education.

Card 1/4

Forming Aircraft Control Outline SOV/5130

COVERAGE: The book describes the general case of longitudinal and lateral maneuverability of modern aircraft, equipped with automatic devices. Air compressibility is taken into account. The problem is treated linearly, with the help of simple methods of the theory of aircraft regulation. Approximate graphic and analytical methods for determining the center of gravity and the transmission ratios of the automatic systems are determined. A method of improving the maneuverability characteristics and the controllability of aircraft at high altitude through the use of automatic stabilizers is discussed. The authors thank A. M. Letov and N. A. Kheyfets, Doctors of Technical Sciences, and I. L. Goloborod'ko and A. Ya. Vasil'yev, Engineers. There are 4 references, all Soviet.

TABLE OF CONTENTS:

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AM4022014 BOOK EXPLOITATION S/

Ostoslavskiy, Ivan Vasil'yevich; Strazheva, Irina Viktorovna

Flight dynamics; trajectories of flying apparatuses (Dinamika poleta; trayektorii letatel'ny*kh apparatov) Moscow, Oborongiz, 1963. 430 p. illus., biblio. Errata slip inserted. 10,000 copies printed. (Textbook for aviation vuzes and departments) Publishing house editor: M. F. Bogomolova; Technical editor: V. I. Oreshkina; Reviewers: Professor Kurshev, N. V., Professor Tkachenko, Ya. Ye.; Editor: Docent Kotlyar, Ya. M.; Chief editor: Engineer Krasil'nikov, S. D.

TOPIC TAGS: Flight dynamics, flight trajectory, airplane, guided missile, ballistic rocket, rocket plane, equation of motion, problem of Mayer, time standard atmosphere, dynamic ceiling, maneuvering, flight range, effective radius

PURPOSE AND COVERAGE: This book is a textbook for students at aviation vuzes and conforms to programs in flight dynamics. It can be used also by engineers concerned with the design of flying apparatuses. In this book, methods of computing the flight trajectories of different flying apparatuses - airplanes, guided missiles, ballistic rockets, and rocket planes - are described. Methods of optimizing flight trajectories based on the application of variational calculus are

Card 1/7

AM4022014

analyzed. Brief information is presented concerning the application of mathematic apparatus to problems of flight dynamics. Problems of the maneuverability and stability of flying apparatuses are to be analyzed in the second book on this general subject. The authors thank Professors Ya. Ye. Tkachenko and N. V. Kurshev and Docent Ya. M. Kotlyar.

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Literature - - 426

SUB CODE: AI, AP SUBMITTED: 10Aug63 NR REF SOV: 35

OTHER: 8 DATE ACQ: 5Mar64

Card 7/7

L 27323-66 EWT(d)/FS(m)/EWT(1)/EWP(m)/T-2/EWP(1)/EWA(1) IJP(c) BC

ACC NR: AM6001054 Monograph UR/

Ostoslavskiy, Ivan Vasil'yevich; Strazheva, Irina Viktorovna

Flight dynamics; stability and controll of aircraft (Dinamika poleta; ustoychivost' i uprovlyayemost' letatel'nykh apparatov) Moscow Izd-vo "Mashinostroyeniye," 1965. 467 p. illus., biblio. Errata slip inserted. 10,000 copies printed. Textbook for aviation institutes.

TOPIC TAGS: flight mechanics, aerodynamic control, aerodynamic stability, motion equation, perturbed aircraft motion

PURPOSE AND COVERAGE: This monograph is intended as a flight-dynamics textbook for students attending higher aviation schools and may also be helpful to engineers engaged in aircraft design. The book is concerned with the theory of aircraft stability and control. Up-to-date methods are presented for studying stability and control of aircraft within a wide range of speeds, in longitudinal and lateral motion, during launching and landing, and at critical angles of attack. Transmission functions of aircraft and the methods used in selecting optimum parameters for both aircraft and the automatic control system are discussed.

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ACC NR: AM6001054

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ACC NR: AM6001054

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Ch. XIII. Direct and inverse problems of flight dynamics. The concept of the development of border stabilization contour -- 433

Appendices -- 450

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SUB CODE: 01/ SUBM DATE: 20Jul65/ ORIG REF: 027/ OTH REF: 004

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L 16906-66 ARG/EWT(d)/FBD/EWT(1)/FBO/EWP(m)/EWP(c)/EWA(d)/EWP(h)/FBA/ETC(m)-6

ACC NR: AT6003577 WW/GS/GW SOURCE CODE: UR/0000/65/000/000/0283/0301

AUTHOR: Strazheva, I. V.

69
B+1

ORG: None

TITLE: The flight of a rocket along a ballistic trajectory with consideration of the rotation of the earth

SOURCE: Issledovaniya po dinamike poleta (Research on flight dynamics), no. 1. Moscow, Izd-vo Mashinostroyeniye, 1965, 283-301

TOPIC TAGS: ballistic trajectory, ballistic rocket, rocket flight, earth rotation, trajectory determination

ABSTRACT: The purpose of the article is to outline a method of calculating, in the first approximation, the boundaries of the possible range of a rocket with respect to the launch point, taking the rotation of the Earth into account. The various forces acting on the ballistic rocket during different stages of its flight (powered and passive) are analyzed. It is assumed that: (1) the Earth has a spherical surface, with the center of gravity at the geometric center of the terrestrial sphere, which has a radius of 6,371 km; (2) the Earth is a uniform body rotating with respect to the polar axis with a constant angular velocity of

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UDC 629.197.7.005

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ACC NR: AT6003577

$7.26 \cdot 10^{-5}$ rad/sec; and (3) the movement of the rocket takes place in Kepler's central force field, with the intensity of the field changing in inverse proportion to the square of the distance from the center of the Earth to any considered point of the trajectory. A formula is derived for determining the flight range of the rocket in the passive section in an inertial system of polar coordinates. The expressions derived may be used, in the first approximation, for the calculation of the total range of the ballistic rocket from the launch point to the impact point, with proper consideration for the diurnal rotation of the Earth. Two specific examples are given, illustrating the use of this method. Orig. art. has: 3 tables, 8 figures, and 28 formulas.

SUB CODE: 19 / SUBM DATE: 02Aug65 / ORIG REF: 001 / OTH REF: 006

Card 2/2

CZECHOSLOVAKIA/Acoustics - Ultrasonics. J

Abs Jour : Ref Zhur Fizika, No 9, 1959, 21150

Author : Strelec, Julius
Inst : -
Title : Possibilities of Using Ultrasound

Orig Pub : Jemna mech. a opt., 1958, 3, No 12, 420-422

Abstract : Popular article.

Card 1/1

STRELEC, V.

"Ultrasonic impulse device for the nondestructive testing of materials."

p. 359 (Electrotehniski Vestnic. Electrotechnical Review) Vol. 25, no. 9/10 Sept./Oct. 1957. Lujbljana, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

STRELEC, Vladimir, ing.; KONONENKO, Aleksej, ing.

Automatization of machines in packaging technology. Automatika 2 no.3:147-154 Ag '61.

(Automation) (Packaging)

STRELEC, Vladimir, dipl. inz. (Zagreb, Mihanoviceva 38/I)

Business programming by the critical path method. Automatika 5 no.5:399-404 '64.

STRELECKY, O.

New method of advertising laboratory instruments. Jemna mech opt 10 no.2:3 of cover F '65.

1. Laboratorni pristroje, Prague.

STRELETS, A. A.
USSR/Engineering - Machine Tools

Card 1/1

Author : Strelets, A. A.

Title : About high-speed drilling

Periodical : Stan. i instr. 24/4, 11 - 14, April 1953

Abstract : Designations are given for two qualities of steel, TK and VK. The latter is preferable for tools used in machining hard and brittle materials. A special type of steel, VK8, is recommended for drills used on steel and cast iron in high-speed work. Other types of steel are compared with the above two. These are harder and cut better but break their edges more easily. The article goes into the various problems of sharpening the cutting edge to obtain maximum results. Tables, graphs, drawings and illustrations.

Institution : ....

Submitted : ....

BOLDYREV, G.P.; VOGMAN, D.A.; NOVOKHATSKIY, I.P.; VERK, D.L.; DYUGAYEV, I.V.; KAVUN, V.M.; KURENKO, A.A.; UZBEKOV, M.R.; ARSEN'YEV, S.Ya.; YEGORKIN, A.N.; KORSAKOV, P.F.; KUZ'MIN, V.N.; STRELETS, B.A.; PATKOVSKIY, A.B.; BOLESLAVSKAYA, B.M.; INDENBOM, D.B.; FINKEL'SHTEYN, A.S.; SHAPIRO, I.S.; LAPIN, L.Yu.. Prinimali uchastiye: NEVSKAYA, G.I.; FEDOSEYEV, V.A.; KASPILOVSKIY, Ya.B., ZERNOVA, K.V.. BARDIN, I.P., akademik, otv.red.; SATPAYEV, K.I., akademik, nauchnyy red.; STRUMILIN, akademik, nauchnyy red.; ANTIPOV, M.I., nauchnyy red.; BELYANCHIKOV, K.P., nauchnyy red.; YEROFEYEV, B.N., nauchnyy red.; KALGANOV, M.I., nauchnyy red.; SAMARIN, A.M., nauchnyy red.; SLEDZYUK, P.Ye., nauchnyy red.; KHLEBNIKOV, V.B., nauchnyy red.; STREYS, N.A., nauchnyy red.; BANKVITSER, A.L., red.izd-va; POLYAKOVA, T.V., tekhn.red.

[Iron ore deposits in central Kazakhstan and ways for their utilization] Zhelezorudnye mestorozhdeniia TSentral'nogo Kazakhstana i puti ikh ispol'zovaniia. Otvetstvennyi red. I.P.Bardin. Moskva, 1960. 556 p. (MIRA 13:4)

1. Akademiya nauk SSSR. Mezhduvedomstvennaya postoyannaya komissiya po zhelezu. 2. Gosudarstvennyy institut po proyektirovaniyu gornykh predpriyatiy zhelezorudnoy i margantsevoy promyshlennosti i promyshlennosti nemetallicheskikh iskopayemykh (Giproruda) (for Boldyrev, Vogman, Arsen'yev, Yegorkin, Korsakov, Kuz'min, Strelets,

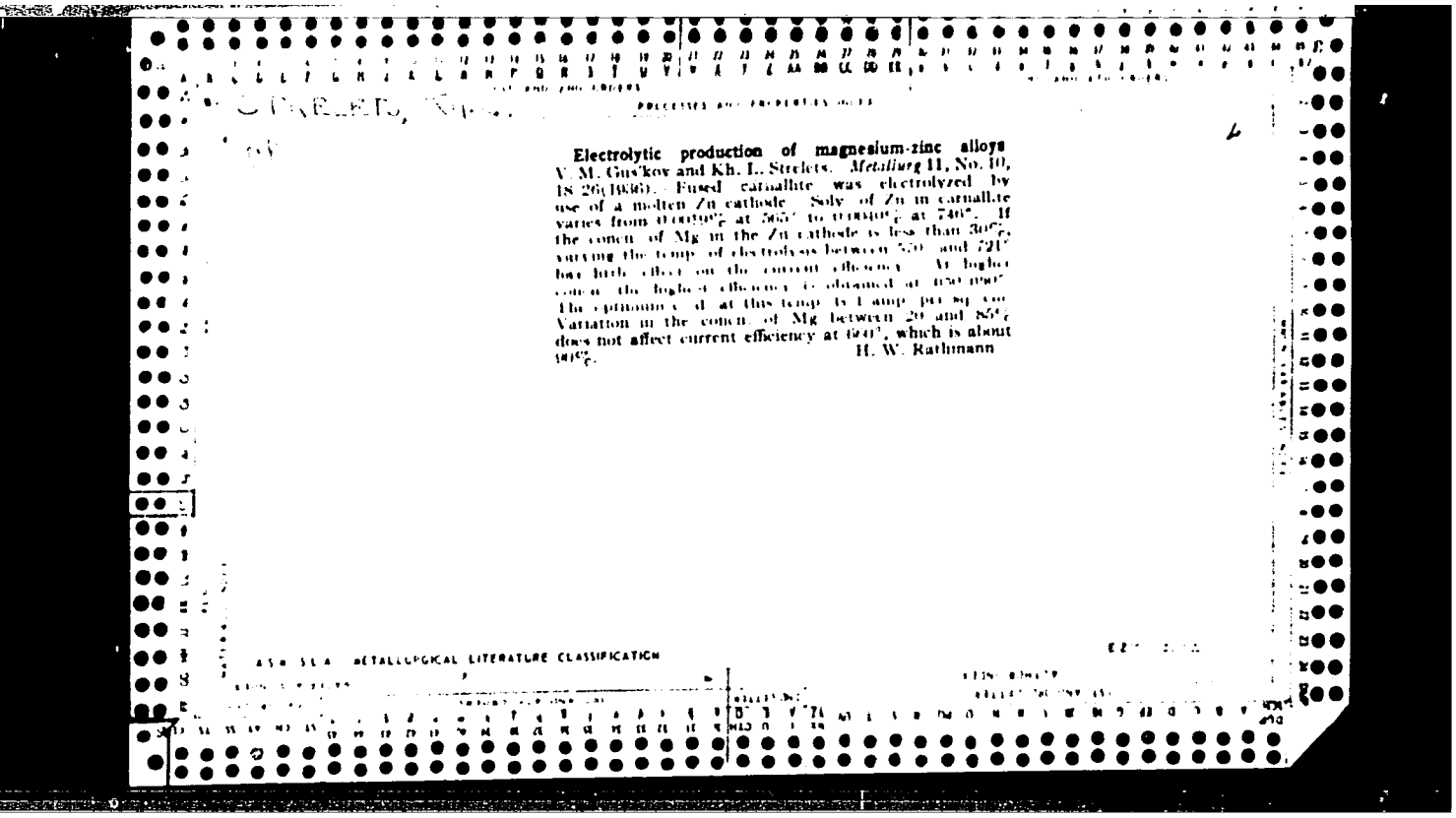
(Continued on next card)

BOLDYREV, G.P.--(continued). Card 2.

3. Institut geologicheskikh nauk AN Kazakhskoy SSR (for Novokhatskiy). 4. TSentral'no-Kazakhstanskoye geologicheskoye upravleniye Ministerstva geologii i okhrany nedr SSSR (for Verk, Dyugayev, Kavun, Kurenko, Uzbekov). 5. Nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki poleznykh iskopayemykh (Mikhanobr) (for Patkovskiy). 6. Gosudarstvennyy institut proyektirovaniya metallurg.zavodov (Gipromez) (for Boleslavskaya, Indenbom, Finkel'shteyn, Nevskaya, Fedoseyev, Karpilovskiy). 7. Mezhduvedomstvennaya postoyannaya komissiya po zhelezu AN SSSR (for Shapiro, Zernova, Kalganov). 8. Gosplan SSSR (for Lapin).
(Kazakhstan--Iron ores)

KRYUCHKOV, B.S.; SERAFIMOV, L.A.; STRELETS, I.P.; GOLYNETS, Yu.F.; L'VOV, S.V.

Extraction of double-base acids by liquid extraction. Khim. i tekh. topl. i masel 9 no.4:6-9 Ap '64. (MIRA 17:8)



Electrolytic production of magnesium-zinc alloys V. M. Gus'kov and Kh. L. Streletz. *Metallurg* 11, No. 10, 18-26(1936). Fused carnallite was electrolyzed by use of a molten Zn cathode. Soly. of Zn in carnallite varies from 0.0130% at 565° to 0.1310% at 740°. If the concn. of Mg in the Zn cathode is less than 30%, varying the temp. of electrolysis between 550° and 720° has little effect on the current efficiency. At higher concn. the highest efficiency is obtained at 650-700°. The optimum c.d. at this temp. is 1 amp. per sq. cm. Variation in the concn. of Mg between 20 and 85% does not affect current efficiency at 640°, which is about 80%.

H. W. Rathmann

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

STRELETS, Kh. L.; TAYTS, A. Yu.; GULYANITSKIY, B. S.

Metallurgy of Magnesium, Gosudarstvennoye Nauchno-Tekhnicheskoye Izdatel'stvo Literatury po Chernoy i Tsvetnoy Metallurgii. Moscow (1959) 491 pp.

B-78883, 13 Sept 54

STRELETS KH. L.

GERM

Strelets, Kh. L., Taits, A. Yu. and Gulyanitskii, B. S.: Metallurgie des Magnesiums. Berlin: Verlag Tech. 1955. 401 pp. DM 31.50. Reviewed in *Chimie & Industrie* 73, 1185(1955).

MG

(2)

Strelets, Kh. L.

AID P - 1576

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 6/21

Authors : Strelets, Kh. L. and Desyatnikov, O. G.

Title : Surface tension of the fused salts of the isoconcentration section (10% of $MgCl_2$ by weight) of the system $MgCl_2$ - $CaCl_2$ - KCl - NaCl.

Periodical : Zhur. prikl. khim., 28, no.1, 40-44, 1955

Abstract : The surface tension was measured by the method of maximum pressure of a gas bubble. $MgCl_2$ was found to have the minimum, and $CaCl_2$ the maximum surface tension. Four diagrams, 7 tables, 5 references (4 Russian: 1935-1947)

Institution: None

Submitted : 0 9, 1953

STRELETS, Kh. L.

AID P - 2265

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 10/19

Authors : Strelets, Kh. L. and O. G. Desyatnikov

Title : Density of fused salts of the isoconcentration section (10% of $MgCl_2$ by weight) of the system $MgCl_2$ - $CaCl_2$ - KCl - NaCl.

Periodical: Zhur. prikl. khim., 28, no.2, 201-205, 1955

Abstract : Seventy-two compounds have been studied. The densities are compiled in tables. Two tables, 3 diagrams, 3 refs. (all Russian: 1935-1940)

Institution: None

Submitted : 0 9, 1953

STRELETS, Kh. L.

AID P - 2280

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 6/21

Authors : Strelets, Kh. L. and O. G. Desyatnikov

Title : Electric conductivity of fused salts of the iso-concentration section (10 $MgCl_2$ by weight) of the system $MgCl_2$ - $CaCl_2$ - KCl - NaCl.

Periodical: Zhur. prikl. khim., 28, no.3, 268-74, 1955

Abstract : A method of measuring the electric conductivity is described in detail. Measurements of pure salts and of their mixtures were carried out at various temperatures, first on heating and then on cooling. The data are compiled in tables and diagrams. Six photos, 5 diagrams, no references.

Institution: None

Submitted : 0 9, 1953

AID P - 3500

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 15/21

Authors : Strelets, Kh. L., V. N. Zhludneva, and I. L. Reznikov

Title : Viscosity of fused salts of the isoconcentration section ($MgCl_2$, 10% by weight) of the system $MgCl_2$–$CaCl_2$–KCl–NaCl

Periodical : Zhur. prikl. khim., 28, 6, 643-651, 1955

Abstract : The viscosity was determined by the Coulomb method. The experimental data show that the viscosity of the quaternary electrolytes is not an additive function of the composition. The effect of the concentrations of KCl, NaCl, and $CaCl_2$ on the viscosity of the electrolytes has been studied. Seven tables, 3 references, 2 Russian (1935-1937).

Institution : None

Submitted : 0 9, 1953

SOV/137-58-11-22218

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 54 (USSR)

AUTHORS: Strelets, Kh. L., Vasil'yev, Z. V., Gus'kov, V. M., Ivanov, A. I., Moiseyev, A. A., Farengol'ts, V. M.

TITLE: Development of an Electrolytic Method of Magnesium Recovery (Razrabotka elektroliticheskogo sposoba polucheniya magniya)

PERIODICAL: V sb.: Legkiye metally, Nr 4. Leningrad, 1957, pp 87-92

ABSTRACT: The history of the creation of Mg production in the USSR. The major efforts of the research and planning institutions and plants were directed toward improving the designs of the cells and speeding the Mg electrolysis process. In recent years, five-anode cells of both top and side anode-insertion designs, operating at 60,000 amps I, have been placed in operation. The working height of the anode has been increased from 80 to 100 cm. When the distance between poles is 8 cm, this does not result in any significant reduction in the current efficiency of Mg. These electrolysis procedures require 15 kwh/kg Mg when Mg chloride is subjected to electrolysis in a bath of optimal composition.

I. G.

Card 1/1

SOV/137-58-9-18798

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 92 (USSR)

AUTHORS: Strelets, Kh.L., Voynitskiy, A.I., Ivanov, A.I., Petrov, V.I., Sergeyev, V.V., Forsblom, G.V.

TITLE: Studies in the Metallurgy of Titanium (Raboty v oblasti metallurgii titana)

PERIODICAL: V sb.: Legkiye metally. Nr 4. Leningrad, 1957, pp 114-120

ABSTRACT: A review of studies of titanium metallurgy in the USSR comprising the production of anhydrous $TiCl_4$, the development of processes and equipment for reduction of $TiCl_4$ by Mg and Na, the purification of Ti sponge, the electrolysis of Ti and TiO_2 chlorides, the electrolytic refining of Ti, etc. The studies and investigations performed have made it possible to organize large-scale industrial extraction of Ti in the USSR.

Ye.Z.

1. Metallurgy--USSR 2. Titanium--Study and teaching

Card 1/1

136-6-11/26

AUTHOR: Strelets, Kh.L. and Muzhzhavlev, K.D.

TITLE: Use of Radio-active Isotopes for Investigating the Mechanism of the "Passivation" of Cathode in a Magnesium Electrolyser. (Primeneniye radioaktivnykh izotopov dlya issledovaniya mekhanizma "Passivatsii" katodov v magniyevom elektrolizere)

PERIODICAL: Tsvetnyye Metally, 1957, No.6, pp. 52-56 (USSR)

ABSTRACT: The authors have suggested that the main cause of the passivation of cathodes in magnesium electrolysers with side arrangement of the anode when charged with magnesium chloride is the anodic solution of the iron anode and deposition of the iron on the cathode, the sponge iron absorbing dispersed magnesium oxide. The experiments described were intended to check this hypothesis and were carried out on the semi-full scale electrolyser at the All-Union Aluminium-Magnesium Institute (VAMI). Radio-active iron, Fe^{59}, was arranged in the anode contact. Samples of sludge, electrolyte, floated magnesium and cathode film were tested with a counter after suitable purification. Results obtained are tabulated as are data showing the effect of solubility of different zones of the anode contact on the yield with respect to current. The yield and the radio-activity of the sludge are plotted on a

Card 1/2

Use of Radio-active Isotopes for Investigating the Mechanism of the "Passivation" of Cathode in a Magnesium Electrolyser.

common time axis. The results showed that anode-contact iron is indeed deposited on the cathode and confirmed the authors' hypotheses and the special influence on passivation of solution of the upper zone of the anode contact.
There are 3 figures and 2 tables.

ASSOCIATION: VAMI

AVAILABLE: Library of Congress

Card 2/2

SOV/137-[illegible]-7-14545

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 86 (USSR)

AUTHOR: Strelets, Kh L

TITLE: Current Efficiency and Mechanism of Metal Loss in Electrolytic Production of Magnesium (Vykhod po toku i mekhanizm poter' metalla pri elektroliticheskom poluchenii magniya)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 471-487

ABSTRACT: Attainment of high performance indices in the electrolysis process requires high current efficiency at minimal voltage in the cell. This depends upon the design of the cell, the composition of the electrolyte (E), the distance between electrodes, the working height of the electrodes, the current density (cd), and the E temperature. In studying the effect of the difference between electrodes in the 2-12 cm range at anode current densities of 0.17, 0.34, 0.51, and 0.68 amps/cm^2, and an anode working height of 40, 60, 80, 100, and 120 cm it was confirmed that yield rises with increase in the spacing of the electrodes, with cd, and with increase in the working height of the anode to 80-100 cm. According to the experimental data, variations in cathode cd from 1.02 to 0.61 amps/cm^2 show no

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Current Efficiency and Mechanism of Metal Loss (cont.)

specific relation to current efficiency. The composition of the E is of considerable importance. The current efficiency increases with increasing $CaCl_2$ content of the E (up to 30%) and with increasing NaCl:KCl ratio (in the 1:1 to 6:1 interval). As the NaCl content of the E rises, there is also an increase in energy efficiency owing to the increase in the electrical conductivity of the E. The optimal E is of the following % composition: $MgCl_2$ 7-13, $CaCl_2$ 30-45, NaCl 38-52, and KCl 6-8. The conditions for deposition of the Mg on the cathode and the tendency of the Mg drops to fuse in the E are, along with cell design, the major factors governing the magnitude of Mg loss and current efficiency in electrolysis.

I.G.

1. Magnesium--Production 2. Magnesium--Electrolysis 3. Electric currents--Performance 4. Electrolytic cells--Electrical factors

137-58-6-11949

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 109 (USSR)

AUTHOR: Strelets, Kh. L.

TITLE: Effect of Temperature on Current Efficiency in the Electrolysis of Magnesium Chloride (Vliyaniye temperatury na vykhod po toku pri elektrolize khloristogo magniya)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 488-491

ABSTRACT: With the object of obtaining data on the effect of temperature on current efficiency in the electrolysis of $MgCl_2$, experiments were run in a pilot-plant bath with a quaternary electrolyte of the following % composition: 10% $MgCl_2$, 20% $CaCl_2$, 35% KCl, and 35% NaCl. The investigations were run in the 680-800°C temperature interval, with an anode cd of 0.5 amps/cm^2, ℓ 8 cm, h_a 800 mm, the other electrolysis parameters being constant. The experiments show that in the temperature interval under study the electrolytic current efficiency of Mg in terms of the temperature can be expressed by a linear equation: $\eta = 88 - 0.083 (t - 680^{\circ})$, where t is the temperature of electrolysis. Under industrial conditions it is necessary to run the process of electrolysis at 670-680°, if the m.p. of the electrolyte

Card 1/2

137-58-6-11949

Effect of Temperature

is significantly lower than the m.p. of the metal. In carnallite electrolysis, when the process is run with an electrolyte containing 5-6 percent $MgCl_2$ and 85-90 percent KCl, the temperature of electrolysis must not be in the 690-700° range as otherwise technical difficulties will arise in connection with possible crystallization of the electrolyte

I.G.

1. Magnesium chloride--Electrolysis 2. Electrolytic cells--Electrical properties
3. Electric currents--Temperature factors 4. Electrolytes--Test results

Card 2/2

SOV/136-59-1-13/24

AUTHORS: Arkad'yev, A.G., P'yankov, V.A., Strelets, Kh.L., and Forsblom, G.B.

TITLE: Development of a System for Automatic Control of the Magnesium-Thermic Titanium Reduction Process (Razrabotka skhemy avtomaticheskogo regulirovaniya protsessa magniytermicheskogo vosstanovleniya titana)

PERIODICAL: Tsvetnyye Metally, 1959, Nr 1, pp 53-62 (USSR)

ABSTRACT: The authors describe the titanium production process in which the tetrachloride reacts exothermically with magnesium at a temperature of 850-900°C and over. They suggest that control of this process requires control of tetrachloride feed and reaction-vessel cooling, of charging of magnesium and discharging of magnesium chloride and of non-reactive zone heating. They describe work on the possible automation of the process; Engineers L.B. Kurelyuk, N.A. Plakhotnikova, I.B. L'vin and R.A. Sandler participated. Studies of temperature distribution in reaction vessels showed that temperatures at a given level were uniform within 15-20°C (except at the start), but the level of maximal temperature shifts during the process (Fig 2 shows temperature vs time

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curves for levels 1-5 (in ascending order of height) against time (hours)). From an examination of the requirements for automation they conclude that the system should be based mainly on keeping the process at the maximal temperature and mention that a suitable device has been described (Ref 2). The authors outline the system they have developed. In this (Fig 3), PSR1 potentiometers, connected to the appropriate junctions of multiple-junction thermocouples, control the heating of the upper and lower parts of the reaction vessel; the middle-zone temperature is measured by an EPP-120-2S potentiometer to which the maximal-temperature finder automatically connects the highest-temperature junction of those in that zone; during the heating the zone-temperature is controlled by a contact on the potentiometer, operating, through a type IR-130 controller and a type IM-2/120 actuating mechanism, the regulating valve for the tetrachloride flow; this flow is also controlled by the pressure in the vessel (the manometer being

Development of a System for Automatic Control of the Magnesium-Thermic Titanium Reduction Process

provided with a DSR 1 secondary instrument with contacts), manually, or remotely by a transducer PD1 and a secondary device EPID-05 with an integrator; a computer provides, depending on signals from the integrator for the appropriate influxes of tetrachloride, the tapping of magnesium chloride and magnesium addition and the ending of the process. The authors give descriptions of the circuits (Fig 4), the ITM-205 maximal-temperature finder (made by the KB TsMA) and the multiple-junction couples it requires, the control valve and the flow transducer type PD1 (Fig 5). They outline tests on a pilot-plant scale installation which showed that the temperature control (Fig 6) was better than with manual regulation (Fig 7) and that better-quality processes with higher

Development of a System for Automatic Control of the Magnesium-Thermic Titanium Reduction Process

productivities were obtained with automation (Table). They state that the automatic system has functioned well in full-scale tests.
There are 6 figures, 1 table and 4 Soviet references.

Kh. L., Cand Tech Sci -- (diss) "Research into [illegible] of electrolytic production of magnesium from chlorides." Moscow, 1960. 20 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Kharkov Inst of Non-ferrous Metals im M. I. Kalinin); 200 copies; price not given; list of author's work at end of text (25 entries); (KL, 24-60, 132)

PHASE I BOOK EXPLOITATION SOV/4184

Strelets, Kh.L., A.Yu. Tayts, and B.S. Gulyanitskiy.

Metallurgiya magniya (Metallurgy of Magnesium) 2d ed., rev. and enl. Moscow, Metallurgizdat, 1960. 479 p. Errata slip inserted. 2,650 copies printed.

Reviewers: V.A. Pazukhin, Doctor of Technical Sciences, Professor, Ya.M. Kheyfits, Candidate of Chemical Sciences, V.N. Verigin, Candidate of Technical Sciences, A.Ya. Fisher, Candidate of Technical Sciences, Ya.A. Tsenter, Candidate of Technical Sciences, G.S. Markov, Engineer, and V.V. Krivoruchenko, Engineer; Ed.: S.M. Chernobrov; Ed. of Publishing House: M.S. Arkhangel'skaya; Tech. Ed.: M.R. Kleynman.

PURPOSE: This book is intended for technical and scientific personnel in the metallurgical industry. It may be used by students of the field in schools of higher education, particularly those specializing in the production of magnesium.

COVERAGE: The book gives the characteristics of the raw materials used in the production of magnesium, and discusses the theoretical bases of magnesium metallurgy. The electrolytical and thermal manufacturing processes are described. The properties of magnesium and the methods used in its refinement are discussed. B.S. Gulyanitskiy wrote Chapters I and IV, Kh.L. Strelets -- Chapter II, and

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Metallurgy of Magnesium SOV/4184

A.Yu. Tayts -- Chapters III and V. The authors thank Professor Doctor V.A. Pazukhin. There are 438 references.

TABLE OF CONTENTS:

Card ~~2/15~~

STRELETS, Kh.L.; BONDARENKO, N.V.

New composition of electrolyte for magnesium baths. Tsvet. met. 33 no.9:63-66 S '60. (MIRA 13:10)
(Magnesium--Electrometallurgy)

BONDARENKO, N.V.; STRELETS, Kh.L.

Specific weight, conductance, and surface tension of melts in the system $MgCl_2$ - NaCl - $BaCl_2$. Zhur.prikl.khim. 35 no.6: 1271-1276 Je '62. (MIRA 15:7)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut.
(Systems (Chemistry)) (Chlorides)

STRELETS, Kh.L.; BONDARENKO, N.V.

Effect of certain factors on sludge formation in magnesium electrolytic cells. TSvet. met. 35 no.9:56-61 S '62. (MIRA 16:1)

(Magnesium--Electrometallurgy)

L 13502-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003481 S/0078/63/008/007/1706/1709

AUTHOR: Strelets, Kh. L.

TITLE: Reaction of magnesium chloride with calcium oxide in chloride melts

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 7, 1963, 1706-1709

TOPIC TAGS: magnesium chloride, calcium oxide, magnesium oxide, Ca sup 45

ABSTRACT: There is no experimental data in existence which describes the behavior of CaO in multicomponent mixtures of melted salts containing magnesium chloride. A thermodynamic calculation which was carried out on the basis of thermochemical data cited by Kubashevskiy and Evans (Termokhimiya v metallurgii, I. L., Moscow, 1954) showed that at 700-800°, the equilibrium constants of the reaction

$$MgCl_2 + CaO \text{ is in equilibrium with } MgO + CaCl_2 \qquad (1)$$

are about 10 sup 7 to 10 sup 6, which attests to the fact that the reaction proceeds towards the formation of magnesium oxide. An analysis of reaction (1) in various chloride melts was carried out at 750° by radioactive isotope, thermal, X-ray phase, and crystallo-optical methods. The isotope used was Ca sup 4 5. Results of radiometric measurements, thermal, chemical, X-ray and crystallo -

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L 13502-63

ACCESSION NR: AP3003481

optical analysis data show that, at 700-800°, reaction (1) proceeds towards the formation of magnesium oxide and calcium chloride. Calcium oxide in an amount of 1-3% reacts fully with the magnesium chloride and forms magnesium oxide in the calcium electrolyte. Finely divided magnesium oxide is formed during the reaction of calcium oxide with magnesium chloride. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 24Apr62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: CH NO REF SOV: 000 OTHER: 000

Card 2/2

SANDLER, R.A.; STRELETS, Kh.L.; GARMATA, V.A.; RODYAKIN, V.V.; ARUTYUNOV, E.A.; PETRUN'KO, A.N.; SOKOLOV, I.I.; Prinimali uchastiye: USTINOV, V.S.; KISELEV, O.G.; PEREPICHAY, A.G.; MARICHEV, A.A.; YELISEYEVA, I.B.; SMOL'SKIY, I.Ya.; GOLOV, A.G.

Effect of the rate of feeding titanium tetrachloride into the reactor on the indices of the magnesium thermic reduction process. TSvet. met. 37 no.10:58-60 O '64. (MIRA 18:7)

B[illegible], [illegible], M. G.

[illegible]sity of melts of the system $MgCl_2$ - $NaCl$ - $BaCl_2$. Zhur.prikl. [illegible] 38 no.6:1273-1279 [illegible] '65. (MIRA 18:10)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut.

S/184/62/000/004/004/006
D040/D113

AUTHORS: Desednyy, V.L., Strelets, L.A., and Budin, V.N., Engineers

TITLE: Welding KhN70T steel

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 4, 1962, 30-33

TEXT: The XH70T (ЭИ-435) (KhN70T [EI-435]) steel is a nichrone grade (20% Cr, 60% Ni) used in thin-sheet structures for service at up to 800°C. It has a high hot corrosion resistance at 1100°C but relatively low strength at high temperatures due to the additions of 0.15-0.35% Ti and up to 0.15% Al, and has a tendency to hot cracking and porosity during welding. The Dnepr Machinebuilding Plant im. Frunze (Dnepr Machinebuilding Plant im. Frunze) uses KhN70T steel for welded cylindrical vacuum vessels and has developed welding techniques by which sound welds can be obtained in manual arc welding with and without argon. High-frequency a.c. is mostly used though d.c. can also be employed. Welding must be conducted with minimum current, a short arc, and without transverse oscillations of the electrode.

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S/194/62/000/004/004/006
D040/D113

Welding [illegible]

Contamination with oxygen, sulfur, phosphor, silicon, etc., must be avoided, every [illegible]ded seam must be left to cool completely and be cleaned before welding. [illegible] and the argon must be pure. The best wire for argon arc welding is ЭХ20Н80Т3 (Kh20N80T3) with high Ti and Al content; ЭХ20Н80 (EKh20N80) wire with НЖС-13 (NZh-13) coating can be used for welding without argon. Weldments must be annealed at 1050-1100°C to relieve residual deformation. Kh17Ti can also be joined to 1Х18НДТ (1Kh18NDT) steel using austenitic ЭА1М (EA1M) wire with МФ-1 (MF-1) coating. Polygonization, grain growth at the fusion line and twinning of crystals is not fully eliminated. The chemical composition of the 3 welding wire grades used in experiments and the composition and mechanical properties of welds obtained with each, are tabulated. There is 1 figure and 3 tables.

Card 2/2

STRELETS, N.L.; [illegible]

Refractometric study of the formation [illegible] nickel [illegible] crystals. [illegible] 1963. [illegible]

1. Krymskiy pedagogicheskiy institut [illegible]. Submitted Sept. 23, 1961.

SOV/137-58-9-18691

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 79 (USSR)

AUTHORS: Retivykh, A.P., Strelets, M.N.

TITLE: Continuous Steel-casting Progress and a Description of the Machines for the Continuous Casting of Steel Now in Operation (Razvitiye nepreryvnoy razlivki stali i kharakteristika deystvuyushchikh v nastoyashcheye vremya UNRS)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 25-32

ABSTRACT: A presentation is made of the essence of the various methods of continuous casting of steel. Descriptions are presented of the principles of operation and the designs of continuous-steel-casting machines now operating in the USA, Canada, England, the German Democratic Republic, and the Soviet Union. A classification of the methods and installations for continuous steel casting is offered.

N.N.

1. Foundries 2. Foundries--Equipment 3. Steel--Casting

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SOV/137-58-10-20650

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 46 (USSR)

AUTHORS: Kondratyuk, A.M., Kondratyuk, Yu.M., Strelets, M.N.

TITLE: Certain Regularities in the Crystallization of a Continuous Casting (Nekotoryye zakonomernosti kristallizatsii nepreryvnogo slitka)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 33-59

ABSTRACT: Data on the rate of crystallization of a continuous 175x240-mm ingot at the Krasnoye Sormovo Plant by introduction of S^{35} and P^{32} establishes that the value of the rate of solidification S in the mold varies in the range of 3.4-2.4 cm/min$^{0.5}$, and the value of the index m in the equation $x = S\tau^m$, where x is the thickness of the billet skin, varies in the range of 0.35-0.55. During the secondary cooling in the solidification process, S fluctuates within the limits of 2-3 cm/min$^{0.5}$, while m varies in the limits of 0.675-0.85. The rate of crystallization of the billet in the secondary cooling, at the rate of water flow usually employed at the Krasnoye Sormovo Plant installation, is considerably greater than the rate of crystallization in the

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Certain Regularities in the Crystallization of a Continuous Casting

crystallizer mold. It is concluded that the mold should be shortened from 1500 to 500-600 mm. It is believed that the time required for solidification of a continuous ingot in this case would be reduced by 30%. A method of calculating the surface temperature along the height of the continuous billet is suggested. It is demonstrated theoretically that the volumetric rate of evaporation of the liquid (used for cooling) relative to the area of vaporization is not dependent upon the drop size.

N.N.

1. Coatings--Crystallization 2 Molds--Design 3. Mathematics

SOV/137-58-9-18690

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 78 (USSR)

AUTHORS: Stefanov, I.A., Strelets, M.N.

TITLE: The Quality of a Continually Cast Ingot (Kachestvo nepreryvnogo slitka)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 61-75

ABSTRACT: Analysis of statistical data on the functioning of the industrial continuous-steel-casting installation at the Krasnoye Sormovo Plant shows that rejects may constitute up to 4% of 175x420 mm billets. The main types of defects are pinch effects, transverse and longitudinal external cracks, variation of cross section from the rectangular, and internal cracks. The surface quality of the billets improves with increasing casting rate. The percentage of heats showing no defects rises from 50 to 75% when the casting rate is increased from 0.6 to 0.9 mm/min. (m/min is more likely. Transl. Ed. Note) As the temperature of the metal is increased from 1500-1520 to 1540-1560°C (by optical pyrometer), rejects increase from 3.2 to 6%, including a rise from 0 to 3% for external

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The Quality of a Continually Cast Ingot

longitudinal cracks. Increase in rejects due to longitudinal external cracks from 2 to 8% was also observed when [S] rose from 0.025 to 0.045%. Internal cracks increased with pouring rate and metal temperature. Thus, when the casting rate was 0.5 m/min none were seen, while at a rate of 0.9 m/min the total length of all the cracks in a single cross section of the billet was 750 mm. As the temperature of the metal rose from 1505 to 1545°, the total length of all the cracks in a single section rose from 0 to 620 mm.

N.N.

1. Foundries--Performance 2. Steel--Casting 3. Data--Statistical analysis

SOV/137-58-11-21945

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 11, p 16 (USSR)

AUTHORS: Yevtushenko, V. B., Strelets, M. N.

TITLE: Automatic Regulation and Heat Control in Continuous Steel Casting (Avtomaticheskoye regulirovaniye i teplovoy kontrol' protsessa nepreryvnoy razlivki stali)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 77-83

ABSTRACT: A presentation is made of the significance of the continuous steel casting process (CSP) in terms of increase in rate of output, reduction in cost, and improvement in the conditions of labor and the quality of production. It is noted that introduction of this new method into industry is impossible without complete automation of the process. An analysis of the process is made, equations are suggested, and the conclusion is drawn that there are significant inadequacies in the automatic-regulation and heat-control circuits in CSP at the Novo Tul'skiy (Tula) and the Krasnoye Sormovo plants. A new, more advanced design for automatic regulation and heat control for the CSP is offered, with a list of the parameters to be regulated and controlled, and recommendations are offered for further improvement in the design.

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M. L.

MIKHEYEV, I.N., student; STRELETS, M.N., dots., nauchnyy rukovoditel'

Heat factors in the design of crystallizers. Sbor. nauch. rab. stud. SNO DII no.2:119-139 '57. (MIRA 11:12)

1. Metallurgicheskiy fakul'tet Donetskogo industrial'nogo instituta im. N.S. Khrushcheva.
(Steel ingots) (Solidification)
(Heat exchangers)

STRELETS, M. N.

AUTHORS: Kazantsev, E. I. and Strelets, M. N., Candidates of Technical Sciences., Dotsents. 372

TITLE: The temperature distribution in an ingot during heating in regenerative soaking pits. (raspredeleniye temperatur v slitke pri nagreve v regernerativnykh kolodtsakh).

PERIODICAL: "Stal'" (Steel), 1957, No.4, pp.358-361 (U.S.S.R.)

ABSTRACT: An investigation of the heating process of ingots in regenerative soaking pits was carried out in one of the Southern works. The experimental ingot from mild rimming steel, supplied with thermocouples (dimensions of ingot and the distribution of thermocouples is shown in Fig.1) was heated in a soaking pit (3100 mm long, 2000 mm wide and 3000 mm deep) supplied with 4 regenerators (2 for gas and 2 for air) and fired with a mixture of blast furnace and coke oven gas. The position of the ingot in the pit is shown in fig.2. The temperature distribution in the ingot is shown in Fig.4. It was found that in soaking pits investigated, the heating of ingots was highly assymmetrical causing large temperature gradients across the ingot. The final temperature reached on the surface was 1360-1370°C causing localised melting. It is recommended to lower the temperature in pits during the final stage of heating to 1300-1320°C, as

The temperature distribution in an ingot during heating in regenerative soaking pits. (Cont.)

this will prevent melting and will decrease the final temperature gradient in ingots to approximately 50-60°C instead of observed 90-100°C. There is 1 table, 6 diagrams and 2 Russian references.

137-58-2-2854

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 93 (USSR)

AUTHORS: Kazantsev, Ye. I., Strelets, M. N.

TITLE: A Study of the Ingot-heating Quality of Regenerative Soaking Pits (Issledovaniye kachestva nagreva slitkov v regenerativnykh nagrevatel'nykh kolodtsakh)

PERIODICAL: Tr Donetsk. industr. in-ta, 1957, Vol 19, pp 83-96

ABSTRACT: A study was made of the heating of 6.2-ton rimmed-steel ingots ($\frac{640 \times 670}{680 \times 740}$ x 2300 mm) in 3100 x 2000 mm cells 3000 mm deep, the capacity of each cell being 6 ingots. Every cell was equipped with 4 regenerators (2 for heating air, 2 for heating gas). The fuel used was a combination of blast-furnace and coke-oven gases. The pits had a molten-state slag-removal system. To measure ingot temperatures chromel-alumel thermocouples were used; two were placed at the ends of the ingots (one on top and one on the bottom) and six on the surface of the different faces. Measured were: 1) the consumption of blast-furnace and coke-oven gases and of air; 2) the temperature of the chamber - by means of an optical thermometer aimed at the interior wall of the cell;

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137-58-2-2854

A Study of the Ingot-heating Quality of Regenerative Soaking Pits

3) the temperature of the gases in the vicinity of the test ingot and in the space above the regenerator; 4) the furnace temperature - by means of a thermocouple installed at the center of the cover; 5) the temperature on the surface of the faces and at the center of the ingot. The experimental findings are graphically represented as functions of the soaking time of an initially cold ingot amid other cold ingots (6 ingots per cell). As a result of the tests, diagrams were plotted of the cross-sectional temperature distribution within the ingot.

D.M.

1. Ingots—Heating—Processes

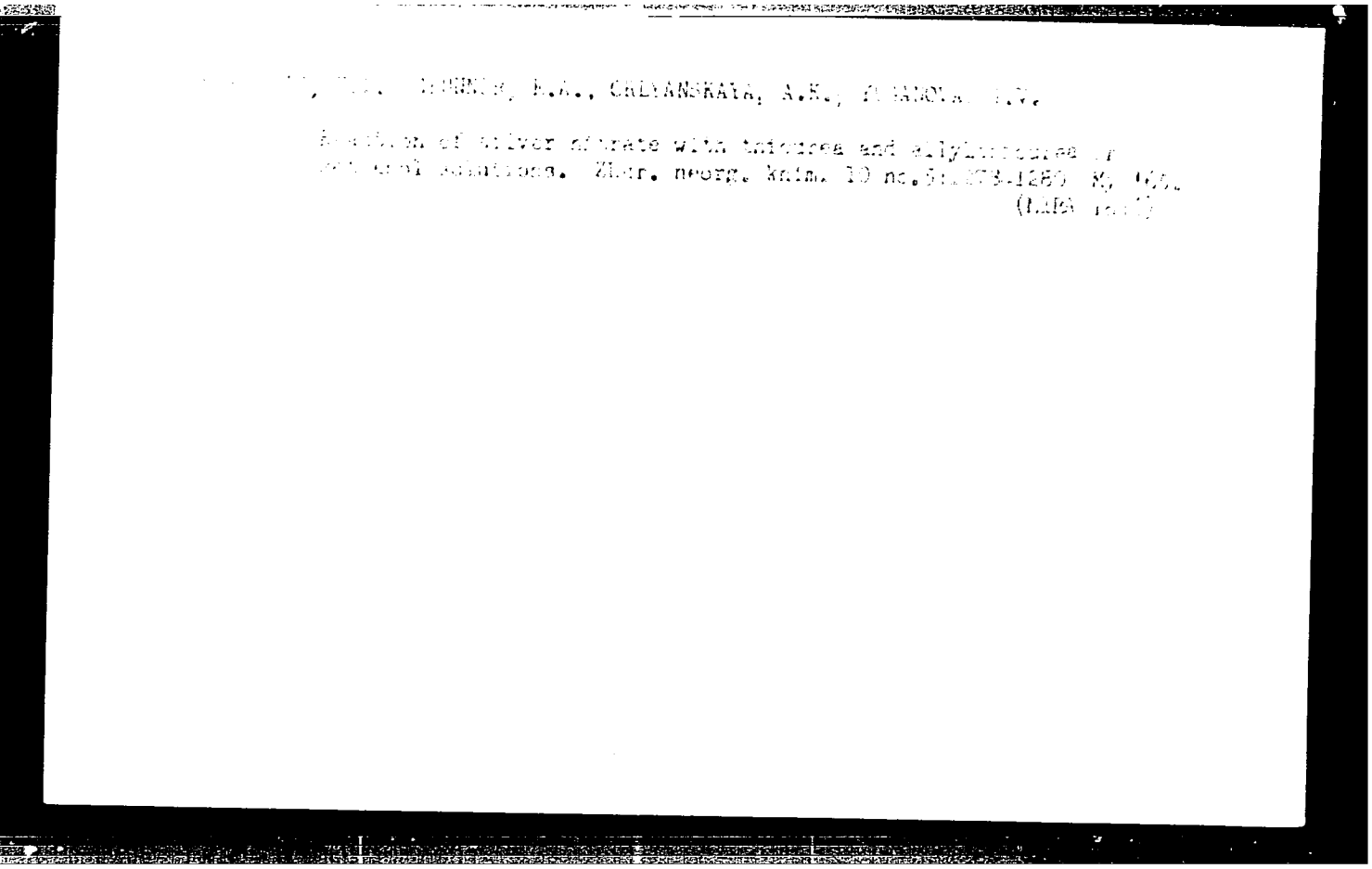
Card 2/2

[redacted], V. I.

"Polythermic Dehydration at Solid-Liquid Interface of the Aluminum Oxide Water System." Sub 17 Dec 51, Moscow City Pedagogical Inst imeni V. P. Potemkin.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55



KARCHAGINA, Ye.A.; STRELETS, N.M.; SHNEYDER, F.A.; GAMEYEVA, Z.S.; KRIVKO, A.N.; KOTENKO, K.I.; AGHAYEVA, R.V.; GAYVORONSKAYA, N.M.

Effectiveness of the compound treatment of chronic dystrophic polyarthritis in miners at Sochi-Matsesta Health Resort at various seasons of the year. Vop. kur., fizioter. i lech. fiz. kul't. 24 no.6:503-506 N-D '59. (MIRA 15:1)

1. Iz sanatoriya imeni S. Ordzhonididze v Sochi (dir. D.A.Bershadskiy) nauchnyy rukovoditel' - prof. M.M.Shikhov).
(ARTHRITIS) (MINERS--DISEASES AND HYGIENE)

STRELETS, N.N.

Some problems in the spectrographic analysis of ashes in relation to expert testimony. Sud.-med.ekspert. 2 no.1:7-10 Ja-Mr '59.
(MIRA 13:4)

1. Kafedra sudebnoy meditsiny (zaveduyushchiy - prof. N.N. Bokarius) Khar'kovskogo meditsinskogo instituta.
(ASH (TECHNOLOGY)--SPECTRA)

STARLETS, A. N.

Cand Med Sci - (diss) "Utilization of the spectrophotographic method of study in individual cases of forensic medical practice." Khar'kov, 1961. 17 pp; (Ministry of Public Health Ukrainian SSR, Khar'kov State Med Inst); 500 copies; price not given; (KL, 6-61 sup, 241)

EDEL', Yu.P.; STRELETS, N.N. (Khar'kov)

A true 2-chamber heart in a 4-year-old child. Arkh.pat. no.11: 72-74 '61. (MIRA 14:11)

1. Iz Khar'kovskogo oblastnogo byuro sudebnomeditsinskoy ekspertizy (nach. - dotsent N.P. Marchenko).
(HEART--ABNORMITIES AND DEFORMITIES)

PHASE I BOOK EXPLOITATION SOV/3532

Serova, Irina Aleksandrovna, Vladimir Stepanovich Sluchevskiy, and Porfiriy Luk'yanovich Strelets

Proizvodstvo keramicheskikh p'yezoelementov; osnovy tekhnologii (Production of Ceramic Piezoids; Fundamentals of the Process) [Leningrad] Sudpromgiz, 1959. 98 p. 2,700 copies printed.

Resp. Ed.: V.A. Isupov; Ed.: A.G. Fomichev; Tech. Ed.: L.I. Levochkina.

PURPOSE: This booklet is intended for laboratory personnel and specialists engaged in the production of ferroelectric ceramic piezoids.

COVERAGE: The booklet reviews basic principles of the process of manufacturing ceramic piezoids from ferroelectric ceramic materials and briefly describes the most important equipment used. Designs of various apparatus and the flow sheet of the process are presented. The properties of certain ceramic ferroelectric materials and other solid solutions are presented and their chemical composition and characteristics analyzed. The preparation of ceramic material from barium and calcium titanate is described. Methods of forming ceramic piezoids under

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high pressure, plasticizers, dry pressing and hot casting are discussed along with methods of firing, machining and glazing formed ceramic piezoids. Methods of polarizing, soldering and impregnating parts made of barium titanate are also discussed and problems of straight-flow production of ceramic piezoids and the labor and equipment required are reviewed. Appendixes indicate the principal requirements for piezoelectric parts as well as their specifications and describe methods for the complete chemical analysis of ceramic material prepared from barium and calcium titanate. Chapters I and II were written by I.A. Serova, III to VII by P.L. Strelets, and VIII by V.S. Sluchevskiy. The authors thank G.A. Smolenskiy, Doctor of Physical and Mathematical Sciences, I.A. Myl'nikova Candidate of Technical Sciences, and Engineer V.A. Isupov. There are 10 references, all Soviet.

TABLE OF CONTENTS:

PHASE I BOOK EXPLOITATION SOV/5058

Bogoroditskiy, N. P., and V. V. Pasynkov, eds.

Spravochnik po elektrotekhnicheskim materialam. V dvukh tomakh. t. 2; Magnitnyye, provodnikovyye, poluprovodnikovyye i drugiye materialy (Handbook on Electrical Engineering Materials. In two volumes. Vol. 2; Magnetic, Conducting, Semiconducting, and Other Materials) Moscow, Gosenergoizdat, 1960. 511 p. Errata slip inserted. 30,000 copies printed.

Eds. of Handbook: K. A. Andrianov, N. P. Bogoroditskiy, Yu. V. Koritskiy, V. V. Pasynkov, and B. M. Tareyev; Eds. (This vol.): N. P. Bogoroditskiy and V. V. Pasynkov; Tech. Ed.: Ye. M. Soboleva.

PURPOSE: This handbook is intended for technical personnel of electrical and radio engineering establishments, power stations and substations, electric repair shops, laboratories, and scientific research institutes.

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Handbook on Electrical Engineering (Cont.) SOV/5058

COVERAGE: This volume of the handbook contains basic information on magnetic materials, metallic conductors, electrical carbon, and important electrolytes used in modern engineering. It describes characteristics of semiconductor, ferroelectric, and piezoelectric materials. It does not include insulating materials, which were covered in Volume I. The authors thank the scientists associated with the Department of Dielectrics and Semiconductors of the Leningradskiy elektrotekhnicheskiy institute imeni V. I. Ul'yanova (Lenina) [Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (Lenin)], especially Ya. I. Panov, Candidate of Technical Sciences, R. K. Manakov and R. P. Voylochnikov, assistants, and G. I. Panteleyev and O. M. Kornev for their assistance. References accompany each part.

Card 2/19

9,2180 (1162, 1331)
9,2110 (1385, 1043, 1153)

85022

S/048/60/024/010/031/033
B013/B063

AUTHORS: Strelets, P. L., Serova, I. A., Yatsenko, N. D., and Markus, P. L.

TITLE: Characteristics of the Technology and Properties of Some Piezoelectric Ceramic Materials

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 10, pp. 1296 - 1299

TEXT: Production conditions of the following piezoelectric compounds were examined: 95%$BaTiO_3$-5%$CaTiO_3$-0.75%$CaCO_3$; 40%$BaNb_2O_6$-60%$PbNb_2O_6$; 55%$PbZrO_3$-45%$PbTiO_3$. The conventional ceramic process served as the basis, but it was varied for each new composition according to its specific properties. The solid $BaTiO_3$-$CaTiO_3$-$CaCO_3$ solution was synthesized directly from a mixture of corresponding salts and oxides at 1300°C. When selecting the burning conditions, one must take the prescribed temperature into account, since to exceed it would mean to

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Characteristics of the Technology and Properties of Some Piezoelectric Ceramic Materials

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B013/B063

deteriorate the piezoelectric and dielectric properties of the material concerned. The elements were polarized at a temperature near the Curie point (118°C) at a field strength of 0.8 kv mm^{-1} in the air or in an organosilicon liquid of the type "КАЛОРИЯ 2" (Kaloriya 2). The production process of $BaNb_2O_6$-$PbNb_2O_6$ is simpler than that of barium titanate. This solid solution was likewise directly synthesized from the corresponding salts and oxides by mixing and subsequent burning at 1000°C. Piezoelectric and dielectric properties of the elements are strongly influenced by the chemical composition of the niobium pentoxide used. Table 1 gives the properties of some specimens prepared with different impurity concentrations out of eight experimental sets of niobium pentoxide. The optimum values of the properties of piezoceramic elements can be held to be dependent upon a definite ratio of the impurities contained in niobium pentoxide. A great advantage of this new material is the fact that molded elements can be burned at relatively low temperatures (1260 ÷ 1280°C). Moreover, no specific medium is necessary in the final burning, due to a low thermal dissociation of lead

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metaniobate at 1000 ÷ 1300°C. The mentioned material polarized at 170 ÷ 180°C and 3 ÷ 5 kv mm^{-1}. The production process of the solid $PbZrO_3$-$PbTiO_3$ solution differs only little from the barium titanate synthesis. Nevertheless, due to a considerable volatility of lead oxide at over 1000°C, the process is not exempt from difficulties. Fig.1 gives the dependence of the volatility of lead oxide on temperature, on the duration of treatment, on the thickness and volume of the specimen. The study of the character of the lead oxide volatility has made it possible to calculate the excess quantum for production conditions in the practice, that must be added prior to the ultimate burning, in order to obtain piezoceramic elements of desired composition. Table 2 indicates Curie points of the examined compositions as compared with barium titanate. Fig.2 shows temperature dependences of the main parameters of the new materials and barium titanate. The course of the curves speaks in favor of the new piezoelectric materials. G. A. Smolenskiy is mentioned. The present paper was read at the Third Conference on

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Piezoelectricity, which took place in Moscow from January 25 to 30, 1960. There are 2 figures, 2 tables, and 4 references: 2 Soviet and 1 Canadian.

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24.2200 (1144, 1137, 11[illegible]
15 24[illegible] 113[illegible]

AUTHORS: Strelets, I. L., Syrkin, L. N., [illegible]

TITLE: Synthesis of multi-component ferrites [illegible] dynamic magnetostriction parameters

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 11, 1961, 1426-1429

TEXT: Ferrites with high dynamic magnetostriction were investigated. Mixed ferrites were synthesized by usual powder-metallurgical methods. The pure oxides: NiO - ZnO - CuO - CoO - FeO_3 were used as raw material. The magnetostriction parameters (coefficient of electromechanical binding, K, and magnetostriction constant, a) were measured by the resonance-antiresonance method (Ref. 1: see below) with low exciting inductions ($B_m \approx 1$ gauss) and H_0 = 10 oersteds. In the system ($Ni_{1-x-y}Zn_yCo_xFe_2O_4$), the maxima of K and a were, independent of the $ZnFe_2O_4$ content, always close to x = 0.02. The optimum $ZnFe_2O_4$ content corresponded to

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$y_{c.t}$ = 0.1 ($a = (1.8\text{-}1.9)\cdot 10^4$ dyne/gauss·cm^2, K = 0.26, composition no. 1). All formulas hold approximately: Similar relationships were observed for the system ($Ni_{1-x-y}Cu_yCo_xFe_2O_4$). In this case, however, the maxima were blurred, and corresponded to a value of x ranging from 0 to 0.01. In this system, a and K reached their maximum values at y = 0.15, x = 0.01 ($a = 1.5\cdot 10^4$ dyne/gauss·cm^2, K = 0.21, no. 2). Taking account of the experimentally obtained relations, it was found from

$$a = K\sqrt{E/4\pi\mu_r} = \Lambda E/4\pi\mu_r$$

(E - Young's modulus; μ_r - reversible magnetic permeability; Λ - sensitivity coefficient), that μ_r and Λ are determined by different energies of anisotropy. Consequently Λ/μ_r or K/μ_r depends on the anisotropy constant K_1. A system $Ni_{1-y}Co_yFe_2O_4(Fe_2O_3)_x$, consisting of several "subsystems", was synthesized to investigate the effect of the Fe_2O_3 excess on magnetostriction. The subsystem $\left[Ni_{0.98}Co_{0.02}Fe_2O_4(Fe_2O_3)_x\right]$ corresponded to the optimum $CoFe_2O_4$ content (y = 0.02). In this system a reached its

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maximum at x = 0.025 (a = (2.2-2.3)·10^4 dyne/gauss·cm^2, no. 3), and K (K = 0.3-0.32) within the range of variation 0.025 $\leq$ (x = x_{opt}) $\leq$ 0.035 (x_{opt} depends on the annealing temperature). The increase of K and a, obtained by the introduction of excessive Fe^{2+} ions is accompanied by an increase of electromagnetic and mechanical losses. The former can be considerably reduced by synthesis of multi-component ferrites with $CuFe_2O_4$, when a and K remain unchanged or are increased but little. Thus the system $(Ni_{0.85}Cu_{0.15})_{1-x}Co_xFe_2O_4$ was obtained by substitution of Cu^{2+} ions for part of the Ni ions in system A. A group of compositions, $Ni_{0.98-x}Co_{0.02}Cu_xFe_2O_4 \cdot (Fe_2O_3)_{0.025}$, was synthesized on the basis of no. 3. In this case, the composition no. 4 is very interesting with x = 0.075 (a = 2.5·10^4, K = 0.38). A further improvement of the chemical composition of Ni-Cu-Co-ferrites was effected by the system $(Ni_{0.925}Cu_{0.075})_{1-x}Co_x \cdot Fe_2O_4(CoFe_2O_4)_x$. In this system, the ferrite with x = 0.01 (no. 5) possessed the maximum values of a and K ($a_{max} \approx 2.9 \cdot 10^4$,

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$K_{max} \approx 0.4$). Contrary to simple ferrite systems, different annealing temperatures corresponding to the maximum values of a and K are characteristic of a number of Ni-Zn-Cu-Co and Ni-Cu-Co ferrites. It is, therefore, possible to modify the properties of ferrites by changing this temperature. The optimum values of the annealing temperature are lowered on transition from pure to industrial raw materials. This is due to impurities contained which act as mineralizers. It was possible to produce new ferrites with higher values of K, a, and Λ than were formerly known. There are 4 figures and 8 references: 3 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: Ref. 1. Van der Burgt C. M., Philips Res. Repts, 8, 91 (1953); Ditto, Philips Res. Repts, 12, 97 (1957); Ditto, Philips Techn. Rev., 18, no. 10, 285 (1956/57); Weil L., Compt. Rend., 234, 1351 (1952).

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ACCESSION NR: AP4019340 S/0181/64/006/003/0790/0795

AUTHORS: Isupov, V. A.; Strelets, P. L.; Serova, I. A.; Yatsenko, N. D.; Shirobokikh, T. M.

TITLE: Peculiarities of ferroelectric phase transitions in solid solutions of the system $Na_{0.5}Bi_{0.5}TiO_3$ -- $PbTiO_3$

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 790-795

TOPIC TAGS: ferroelectric, phase transition, solid solution, Vegard law, dielectric polarization, crystal lattice structure

ABSTRACT: The authors' study stems from lack of information on the effect of diffusion of phase transitions on ferroelectric properties and from disagreement concerning the causes of the relaxation nature of dielectric polarization observed in ferroelectrics with diffused phase transitions. While investigating the dielectric properties and crystal structure in the system $Na_{0.5}Bi_{0.5}TiO_3$--$PbTiO_3$, the authors discovered a number of relationships. Their studies confirm the view that the diffusion of ferroelectric phase transitions declines with

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ACCESSION NR: AP4019840

increase in spontaneous polarization and spontaneous deformation of the solid solutions. At room temperature, the boundary between rhombohedral and tetragonal phases lies in the region of 0-10% $PbTiO_3$. The dependence of unit-cell volume on component concentrations deviates considerably from the Vegard law. The Curie point of the examined solid solutions depends in nonlinear fashion on the concentration of $PbTiO_3$, reaching a minimum at a content of about 10 mol/% . Orig. art. has: 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 09Sep63 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: SS NO REF SOV: 013 OTHER: 002

Card: 2/2

L 7853-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b)/EWA(h) IJP(c)
ACC NR: AP5028116 JD/WH SOURCE CODE: UR/0048/65/029/011/2042/2045

AUTHOR: Buyanova,Ye.A.; Strelets,P.L.; Serova,I.A.; Isupov,V.A.

ORG: none

TITLE: Ferroelectric properties of lead titanate - lead zirconate - lead nickel niobate solid solutions /Report, Fourth All-Union Conference on Ferroelectricity held at Rostov-on-the Don 12-16 September 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2042-2045

TOPIC TAGS: ferroelectric material, solid solution, lead titanate, zirconate, niobate, nickel, dielectric constant, dielectric loss, piezoelectric modulus, elastic modulus, phase transition

ABSTRACT: The Curie points, dielectric constants, piezoelectric moduli, and elastic moduli of 13 solid solutions of the $PbTiO_3$ - $PbZrO_3$ - $Pb(NiNb_2)_{1/3}O_3$ system were measured in order to investigate the behavior of the system near the morphotropic phase boundary. The materials were synthesized from the oxides at 700-800°C for 2-3 hours and sintered at 1100-1160°C. The lead oxide loss and water absorption did not exceed 2% and 0.1%, respectively. X-ray studies showed all the materials to consist of a single phase with the perovskite structure. All the investigated specimens contained between 35 and 50 mole % $PbTiO_3$, between 25 and 55% $PbZrO_3$, and between 10 and 30% $Pb(NiNb_2)_{1/3}O_3$. The Curie temperature decreased monotonically with increasing

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ACC NR: AP5028116

$Pb(NiNb_2)_{1/3}O_3$ and $PbZrO_3$ content and showed no anomaly at the morphotropic phase boundary between the tetragonal and rhombohedric modifications. The elastic compliance, phiezoelectric modulus, and dielectric constant showed broad maxima at the morphotropic phase boundary, but the dielectric loss varied monotonically. The failure of the dielectric loss to show a maximum at the phase transition is surprising, and an optical investigation of the behavior of the domain structure under the action of an electric field should be undertaken. The ratio of $PbTiO_3$ to $PbZrO_3$ concentrations at the morphotropic phase boundary decreased with increasing $Pb(NiNb_2)_{1/3}O_3$ content. This suggest that $Pb(NiNb_2)_{1/3}O_3$ is not totragonal in the ferroelectric state and that a morphotropic phase boundary may be possible in the $PbTiO_3$ - $Pb(NiNb_2)_{1/3}O_3$ system. Some of the investigated solid solutions had rather large piezoelectric moduli, low sound velocities, and high stability of the resonance frequency, and these materials sintered at lower temperatures than the 47% $PbTiO_3$ - 53% $PbZrO_3$ solution. Orig. art. has: 2 figures and 1 table.

SUB CODE: SS,EM,ME SUBM DATE: 00/ ORIG. REF: 004 OTH REF: 003

Card 2/2

LAMIN, P.Z., inzh.; STRELETS, S.V., inzh.; LOZOVOY, I.I., master

Automatic gear lubrication. Mekh.i avtom.proizv. 18 no.3:21-22 Mr '64. (MIRA 17:4)

LAMIN, P.Z., inzh.; LIKHMAN, V.I., inzh.; STRELETS, S.V., inzh.; YUNTAYEV, A.V., inzh.

Automatic control of lubrication. Mekh. i avtom. proizv. 19 no.4: 37-38 Ap '65. (MIRA 18:6)

L 23521-66

ACC NR: AP6008725 (A) SOURCE CODE: UR/0356/65/000/011/0007/0012

AUTHOR: Shtefko, I. (Candidate of technical sciences); Strelets, V. (Engineer); Shtefko, G. (Engineer)

ORG: none

22
13

TITLE: Transportation of mineral fertilizers in polyethylene bags

SOURCE: Tekhnika v sel'skom khozyaystve, no. 11, 1965, 7-12

TOPIC TAGS: polyethylene plastic, fertilizer, agriculture

ABSTRACT: The authors report on the use of bags made from 0.23 mm polyethylene for storage of fertilizer to reduce losses. These containers have 20 times the impact strength of multilayer paper bags. Polyethylene packaging is completely waterproof and nearly impervious to atmospheric oxygen and nitrogen. Polyethylene film can stand temperatures from -40° to +60°C and is not affected by the chemical action of mineral fertilizers. However, these bags are susceptible to punctures and tears and begin to melt at 80-90°. The bags are slippery and more flexible than paper bags which makes manual loading difficult. It is predicted that approximately 40% of the fertilizer produced in the Soviet Union will be packed in polyethylene bags by 1970. It is pointed out that Italy transports about 55% of their mineral fertilizer in polyethylene bags and that one billion bags are put out every year in the United States. The auth-

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UDC: 631.82.004.3

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ACC NR: AP6008725 O

ors describe the equipment used for loading, unloading and transportation of mineral fertilizer in polyethylene bags. Suggestions are made for increasing labor productivity at various stages of the transportation process from the warehouse to the farm. A portable Quonset type polyethylene shelter is described for temporary storage of mineral fertilizer. The unit is 28 m long, 5.5 m wide and 2.75 m high and will sell for approximately 100-150 rubles. Orig. art. has: 6 figures, 2 tables.

SUB CODE: 02,11/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

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